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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,722	08/13/2003	Hung-Jen Wei	ACMP0068USA	1721
27765	7590	06/30/2005		
NORTH AMERICA INTERNATIONAL PATENT OFFICE (NAIPC)				
P.O. BOX 506				
MERRIFIELD, VA 22116				

EXAMINER
BLACKMAN, ROCHELLE ANN J

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/604,722	WEI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rochelle Blackman	2851	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-9,11-14 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11-14 and 17-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 2, 4-9, 11-14, and 17-21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 6-9, 11, 13, 14, and 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Davis et al. (U.S. Patent No. 2002/0064046).

Regarding claim 1, Davis discloses an image projection system (see FIG. 7) comprising: light source (see 104, 106 of FIGS. 1-4) for generating a light beam; a reflective housing (see 102 and 108, 202, or 302 of FIGS. 1-4) comprising an opening (see smallest opening of elements 108, 202, or 302 in FIGS. 1-4), the opening having a diameter smaller than a maximum diameter of the reflective housing (see diameter of the above-described "opening" relative to the maximum diameter of "reflective housing" 102 and 108, 202, or 302 in FIGS. 1-4), the reflective housing forming an accommodating space (see the inside of "reflective housing" 102 and 108, 202, or 302 in FIGS. 1-4), the light source installed inside the accommodating space (see location of

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“light source” 104, 106 inside the above-described “accommodating space” in FIGS. 1-4) so that the light beam generated by the light source substantially propagates along an optical path through the opening away from the accommodating space; and an invisible-light reflector (see 110 of FIG. 1 and pg. 2, paragraphs [0023] and [0028]) installed at a reflecting position intersecting with the optical path outside the opening of the reflective housing, a normal of the invisible-light reflector and the optical path intersecting form predetermined angle (see pg. 2, paragraphs [0023] and [0028]) so that invisible light of the light beam emitted from the opening will be reflected back into the accommodating space; wherein the predetermined angle formed by the normal of the invisible-light reflector and the optical path is an acute angle not equal to zero degrees (see paragraph [0023] – since the “invisible-light reflector” 110 can be either perpendicular to the axis of the reflector, or tilted at angle to it, it is considered to form some sort of angle with the axis of the reflector that is less than 90 degrees, which would be an acute angle), so that infrared rays of the light beam reflected back into the accommodating space by the invisible-light reflector will not focus on the reflective housing.

Regarding claim 2, Davis discloses wherein the reflective housing comprises an elliptic reflective housing (see shape of “reflective housing” 102 and 108, 202, or 302 of FIGS. 1-4), and the light source is installed at a focal point of the elliptic reflective housing (see location of “light source” 104, 106 relative to “elliptic reflective housing” 102 and 108, 202, or 302 in FIGS. 1-4), and the optical path is a major axis of the elliptic

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reflective housing (see optical path of “elliptic reflective housing” 102 and 108, 202, or 302 in FIGS. 1-4).

Regarding claims 4 and 11, Davis discloses wherein the image projection system further comprising a light tube (see 104, 106 in FIGS. 1-4) connected to the light source, wherein the infrared rays of the light beam reflected back into the accommodating space by the invisible-light reflector will not focus on the light tube (see paragraph [0028]).

Regarding claim 6, Davis discloses wherein the image projection system further comprises an image module (see 708 of FIG. 7), the image module comprising a plurality of controllable optical reflectors (see *micromirror device* in paragraph [0039]) for modulating the light beam passing through the invisible-light reflector to generate a projecting beam containing an optical image, wherein the light beam passing through the invisible-light reflector does not comprise the infrared rays (see paragraph [0028]).

Regarding claim 7, Davis discloses wherein the image module is a digital micro-mirror device (see *micromirror device* on pg. 3, in paragraph [0039]).

Regarding claim 8, Davis discloses wherein the reflective housing comprises a parabolic reflective housing (see shape of “reflective housing” 102 and 108, 202, or 302 of FIGS. 1-5), and the optical path is a parallel route by which the light beam propagates after being reflected by the parabolic reflective housing (see optical path and/or axis of “light source” 104, 106 and “elliptic reflective housing” 102 and 108, 202, or 302 in FIGS. 1-4).

Regarding claim 9, Davis discloses an image projection system (see FIG. 7) comprising: a light source (see 104, 106 of FIGS. 1-4) for generating a light beam; a reflective housing (see 102 and 108, 202, or 302 of FIGS. 1-4) comprising an elliptic reflective housing (see shape of "reflective housing" 102 and 108, 202, or 302 of FIGS. 1-4) and a truncated conical section (see 108, 202, or 302 of FIGS. 1-4) comprising an opening (see smallest opening of "truncated conical section" 108, 202, or 302 in FIGS. 1-4), the opening having a diameter smaller than a maximum diameter of the reflective housing (see diameter of the above-described "opening" relative to the maximum diameter of "reflective housing" 102 and 108, 202, or 302 in FIGS. 1-5), the reflective housing forming an accommodating space (see the inside of "reflective housing" 102 and 108, 202, or 302 in FIGS. 1-4), the light source installed inside the accommodating space (see location of "light source" 104, 106 inside the above-described "accommodating space" in FIGS. 1-4) so that the light beam generated by the light source substantially propagates along a major axis of the elliptic reflective housing through the opening away from the accommodating space; an image module (see 708 of FIG. 7) comprising plurality of controllable optical reflectors for modulating the light beam to generate a projecting beam containing an optical image; and an invisible-light reflector (see 110 of FIG. 1 and pg. 2, paragraphs [0023] and [0028]) installed between the reflective housing opening and the image module and at a reflecting position outside the opening of the reflective housing at which the invisible-light reflector intersects the major axis of the elliptic reflective housing, a normal of the invisible-light reflector and the major axis intersecting to form a predetermined angle (see pg. 2, paragraphs [0023]

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and [0028]) so that invisible light of the light beam emitted from the opening will be reflected back into the accommodating space; wherein the predetermined angle formed by the normal of the invisible-light reflector and the major axis is an acute angle not equal to zero degrees (see paragraph [0023] – since the “invisible-light reflector” 110 can be either perpendicular to the axis of the reflector, or tilted at angle to it, it is considered to form some sort of angle with the axis of the reflector that is less than 90 degrees, which would be an acute angle), so that infrared rays of the light beam reflected back into the accommodating space by the invisible-light reflector will not focus on the reflective housing.

Regarding claim 13, Davis discloses wherein the image module is a digital micro-mirror device or a liquid crystal panel (see *micromirror or liquid crystal device* on pg. 3, in paragraph [0039]).

Regarding claim 14, Davis discloses wherein the light source, the reflective housing, and the invisible-light reflector form an integral structure (see “light source” 104, 106; “reflective housing” 102 and 108, 202, or 302; and “invisible-light reflector” 110 in FIGS. 1-4 and see FIG. 6).

Regarding claim 17, Davis discloses an image module (see 708 of FIG. 7), wherein the image module liquid crystal panel (see *liquid crystal device* on pg. 3, in paragraph [0039]).

Regarding claim 18 and 19, Davis discloses wherein the invisible-light reflector is immediately adjacent to the reflective housing along the optical path/major axis (see

location of "invisible-light reflector" 110 relative to "reflective housing 102 and 108 in FIG. 1 and see FIG. 6).

Regarding claim 20, Davis discloses an image projection system (see FIG. 7) comprising: light source (see 104, 106 of FIGS. 1-4) for generating a light beam; a parabolic reflective housing (see 102 and 108, 202, or 302 of FIGS. 1-4) comprising an opening (see smallest opening of elements 108, 202, or 302 in FIGS. 1-4), the parabolic reflective housing forming an accommodating space (see the inside of "reflective housing" 102 and 108, 202, or 302 in FIGS. 1-4), the light source installed inside the accommodating space (see location of "light source" 104, 106 inside the above-described "accommodating space" in FIGS. 1-4) so that the light beam generated by the light source substantially propagates along an optical path through the opening away from the accommodating space; and an invisible-light reflector (see 110 of FIG. 1 and pg. 2, paragraphs [0023] and [0028]) installed at a reflecting position intersecting with the optical path outside the opening of the reflective housing, a normal of the invisible-light reflector and the optical path intersecting form predetermined angle (see pg. 2, paragraphs [0023] and [0028]) so that invisible light of the light beam emitted from the opening will be reflected back into the accommodating space; wherein the predetermined angle formed by the normal of the invisible-light reflector and the optical path is an acute angle not equal to zero degrees (see paragraph [0023] – since the "invisible-light reflector" 110 can be either perpendicular to the axis of the reflector, or tilted at angle to it, it is considered to form some sort of angle with the axis of the reflector that is less than 90 degrees, which would be an acute angle), so that infrared



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rays of the light beam reflected back into the accommodating space by the invisible-light reflector will not focus on the parabolic reflective housing.

Regarding claim 21, Davis discloses wherein the optical path is a parallel route by which the light beam propagates after being reflected by the parabolic reflective housing (see optical path and/or axis of "light source" 104, 106 and "elliptic reflective housing" 102 and 108, 202, or 302 in FIGS. 1-4).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (U.S. Patent No. 2002/0064046) in view of Lemke (U.S. Patent No. 5,615,938).

Davis discloses the claimed invention except for the acute angle and/or predetermined angle being "smaller than 45 degrees".

Lemke teaches providing an angle and/or predetermined angle formed by a normal of an invisible-light reflector (see 5 of FIGS. 1-5 and 7) and the optical path being an acute angle that is smaller than 45 degrees (see angle formed by the normal of "invisible-light reflector" 5 and the optical light path of lamp 3 in FIGS. 1-5 and 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to tilt the "invisible-light reflector" in the "image projection system" of the Davis reference at an acute angle "smaller than 45 degrees", as taught by Lemke in order to effectively reflect radiation out of the light beam (see col. 4, lines 6-10).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rochelle Blackman whose telephone number is (571) 272-2113. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RB



**JUDY NGUYEN**  
**SUPERVISORY PATENT EXAMINER**